

4.6 Transient Frequency Behavior according to FCC part 90 Paragraph 214

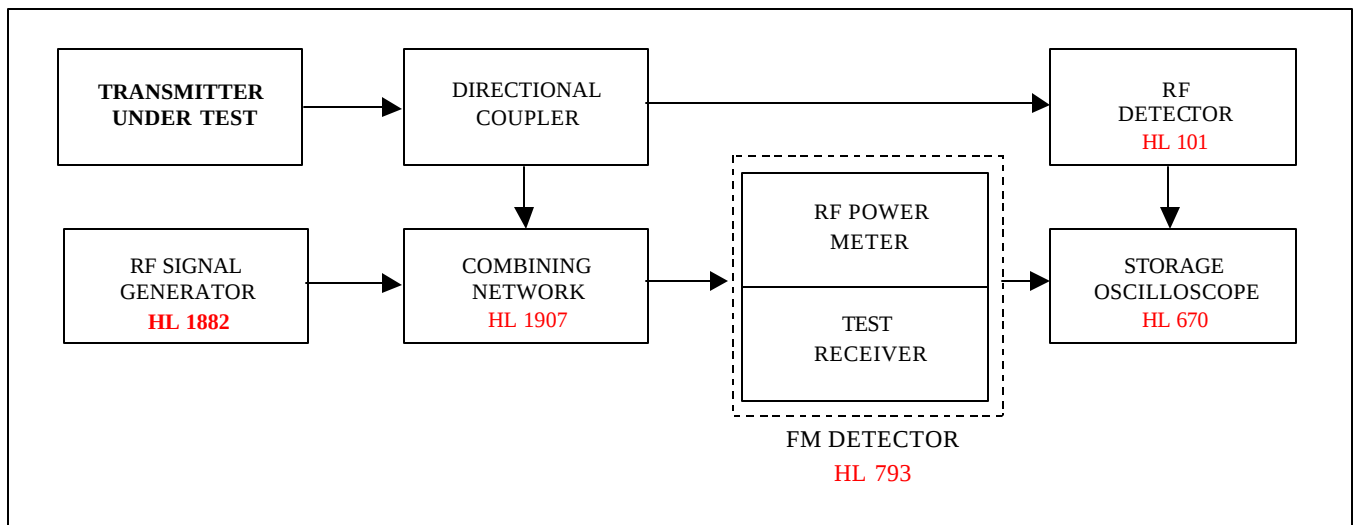
4.6.1 General

This test was performed to determine the maximum frequency difference limits during the time intervals as defined in part 90 paragraph 214.

4.6.2 Test Procedure

The transmitter was tested for transient frequency behavior using the test methodology defined in TIA/EIA-603-A (2.2.19.3). The test set up is depicted below in Figure 4.6.1. The functions of the RF power meter and the test receiver were performed by a Marconi FM Detector (HL793). The scope (HL 670) was triggered by a signal from the transmitter.

Figure 4.6.1
Transient Frequency Behavior Test Set Up



The test results as per 90.214 are recorded in Table 4.6.1 and shown in Plots 4.6.1 – 4.6.2.

Table 4.6.1
Transient Frequency Measurements

Time Intervals	Maximum Frequency Difference KHz.	Pass / Fail
$t_1 = 10$ msec.	$\pm 12.5^*$	Pass
$t_2 = 25$ msec.	$\pm 6.25^*$	Pass
During the time from the end of t_2 to the beginning of t_3 the frequency difference must not exceed the limit specified in 90.213 (± 2.5 PPM x 460 MHz. = ± 1.15 KHz.)		Pass
$t_3 = 10$ msec.	$\pm 12.5^*$	Pass

* The frequency difference during this time period may exceed the defined maximum frequency difference because the transmitter carrier output power rating is less than 6 watts

Plot 4.6.2
Turn Off test results

Date/Time: April 22 2002 12:08:25 PM
 Test Name: Turn Off
 Customer: Miltel
 EUT: Speed HPTx

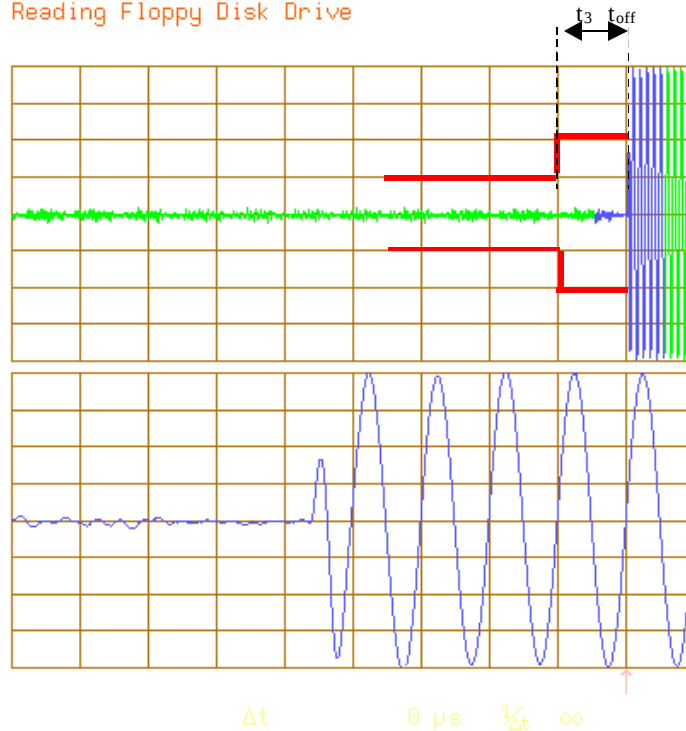
22-Apr-02
 12:08:25

Reading Floppy Disk Drive

1
 10 ms
 1.26 V
 0.00 V

0:1
 1 ms
 1.26 V

10 ms
 1 1.26 V AC
 2 100mV DC
 3 .2 V $\downarrow$
 4 10 mV $\downarrow$



MORE DISPLAY

Screen
 Saver Setup

Color Scheme
 1 2 3 4 5 6
 U1 U2 U3 U4

Full Screen
 OFF On

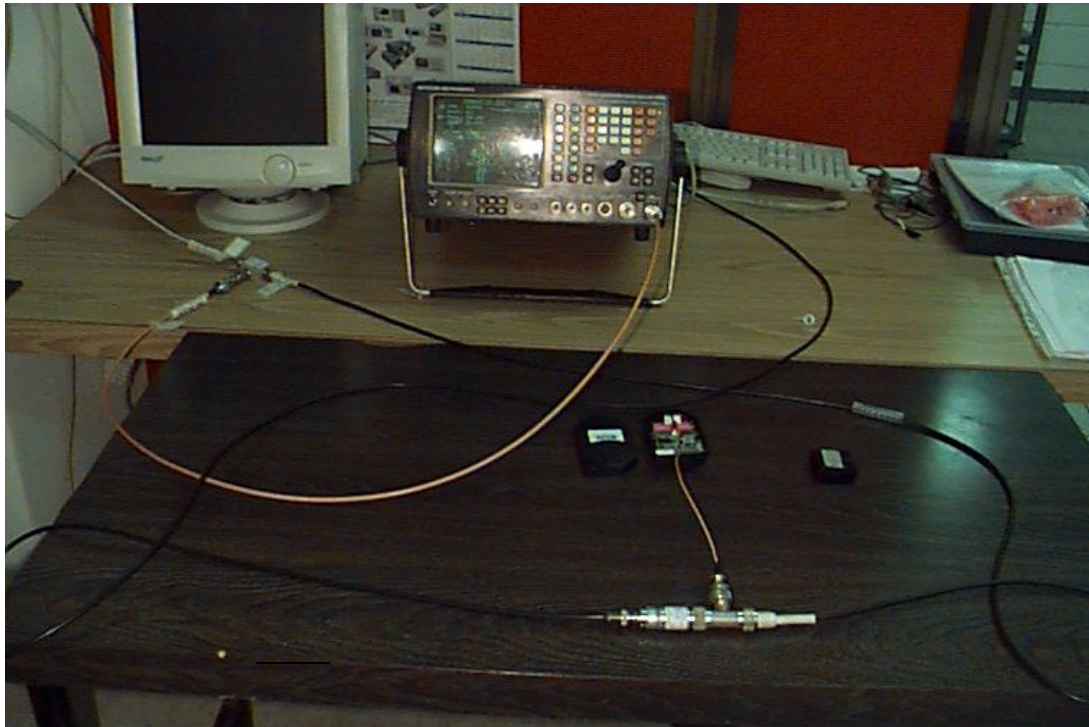
Trace color
 Opaque
 Transparent

Measure Gate
 (highlight)
 OFF On

Data Points
 Normal
 Bold

1 MS/s
 SLOW TRIGGER
 NORMAL

Transient Frequency Behavior Test Set Up



APPENDIX A - Test equipment and ancillaries used for tests

No.	Description	Manufacturer information			Due calibr.
		Name	Model No.	Serial No.	
0041	Double ridged guide antenna, 1-18 GHz	Electro-Metrics	RGA 50/60	2811	3/03
0101	Detector crystal, 0.01 – 12.4 GHz	Hewlett Packard	420A	101	11/02 Check
0446	Active Loop Antenna 10 kHz-30 MHz	Electro-Mechanics	6502	2857	10/02
0465	Anechoic Chamber 9 (L) x 6.5 (W) x 5.5 (H) m	HL	AC-1	023	3/03
0493	Oven temperature	Thermotron	S-1.2 Mini-Max	4016	9/02
0521	Spectrum Analyzer with RF filter section (EMI Receiver 9 kHz - 6.5 GHz)	Hewlett Packard	8546A	0319	9/02
0558	Multimeter Digital	Fluke	76	0904	10/02
0589	Cable Coaxial, A2POL118.2, 3m	GORE	GORE-3	589	12/02
0591	Attenuator 10 dB, 50 Ohm, N-type, 2W	Elisra Electronic Systems	MW2100-N-Type	3	1/03
0604	Antenna Biconilog Log-Periodic/T Bow-Tie, 26 - 2000 MHz	EMCO	3141	9611-1011	1/03
0614	Antenna Dipole Tunable 200 – 1000 MHz	Electro-Metrics	TDS 30-1/30-2	334	1/03
0661	Generator Swept Signal, 10 MHz to 40GHz+ 10dBm	Hewlett Packard	83640B	0266	9/02
0670	Oscilloscope, Digital storage 500MHz, 2Gs/s, 4ch with Telecom Mask Tester	LeCroy Corporation	LC 334A+MT01/02	2387	8/02
0758	Power supply, 36 V, 1 A	Horizon Electronics	DHR 36-1	5361231	6/02 Check
0793	Radio communication test set	Marconi Instruments	2955	9507/179	2/03
0808	Analyzer spectrum, 100 Hz to 2.2 GHz, AM/FM modulator	Anritsu	MS2601B	M178731	3/03
1004	Cable coaxial, PSWJ4, 6 m	ANDREW	ANDREW-6	163	12/02
1424	Spectrum analyzer, 30 Hz - 40 GHz	Agilent Technologies	8564EC	3946A00219	8/02
1425	EMI Receiver System, 9 kHz - 2.9 GHz	Agilent Technologies	8542E	3710A00222	9/02
1536	Cable RF, 2 m	Alpha Wire	RG-58C/U	NA	9/02
1620	Attenuator, 50 Ohm, 2 W, DC to 8 GHz, 10 dB	Midwest Microwave	0217-10-NNN-02	NA	1/03
1882	Generator signal, 0.1 – 990 MHz	Hewlett Packard	8656A	2228A03615	9/02
1907	Power splitter/combiner, 5-500 MHz	Mini-Circuits	ZFSCC-2-1	NA	7/02
1940	Cable 40 GHz, 1.5 m, blue	Rhophase Microwave Ltd.	KPS-1503A-1500-KPS	T4663	10/02
1947	Cable 18 GHz, 6.5 m, blue	Rhophase Microwave Ltd	NPS-1803A-6500-NPS	T4974	10/02